UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,276	12/22/2005	David A. Fish	GB030102	6568

24737 7590 08/13/2010

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
PIZIALI, JEFFREY J	
ART UNIT	PAPER NUMBER
2629	
MAIL DATE	DELIVERY MODE
08/13/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,276	FISH ET AL.	
	Examiner	Art Unit	
	Jeff Piziali	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-29* is/are pending in the application.

4a) Of the above claim(s) *1-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 July 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. *Claims 16-29* are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 16 recites the limitation "***said pixels***" (*line 7*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*active matrix array of pixel elements*" (*line 1*) A single "*pixel*" may include a plurality of "*pixel elements*."

5. Claim 16 recites the limitation "***the dependency of the brightness characteristic of the corresponding pixel on the voltage on a conductor associated with a row containing the***

corresponding pixel" (*line 14*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*a dependency of a brightness characteristic associated with a corresponding pixel*" (*line 8*).

The initially claimed "*dependency*" makes no mention of being dependent upon a voltage.

6. Regarding claim 17, the ellipsis type punctuation marks "**...**" (*line 7*) and empty/blank entries (*lines 5-6 and 8-9*) in the matrix renders the claim indefinite because the claim includes elements not actually disclosed (*those encompassed by the "..." and the empty/blank matrix entries*), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

The Applicant is respectfully requested to identify all of the matrix values.

7. Claim 19 recites the limitation "***the row conductor***" (*line 3*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*a conductor associated with a row*" (*claim 16, line 15*).

8. Claim 21 recites the limitation "***the means for scaling value***" (*line 2*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*a value*" (*claim 16, line 14*).

9. Claim 21 recites the limitation "***the row conductor***" (*line 3*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*a conductor associated with a row*" (*claim 16, line 15*).

10. The terms/variables "***n***" and "***j***" in claim 23 (*line 3*) are each a relative term which renders the claim indefinite.

Each of the terms/variables "***n***" and "***j***" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The Applicant is respectfully requested to clarify whether each of these terms/variables is intended to represent (*e.g., integers, whole numbers, real numbers, etc*).

11. Claim 27 recites the limitation "***the resulting algorithm applied target pixel drive currents***" (*line 10*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*applying an algorithm to the target pixel drive currents*" (*claim 27, line 6*).

12. Claim 27 provides for "***using a value***" (*line 10*), but, since the claim does not set forth any steps involved in the "*using*" method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

The Applicant is respectfully requested to clarify how each of the value is being "*used*."

13. Claim 27 recites the limitation "***the voltage***" (*line 12*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*voltages*" (*claim 27, line 8*).

14. Claim 27 recites the limitation "***the row conductor***" (*line 12*). There is insufficient antecedent basis for this limitation in the claim.

It would be unclear to one having ordinary skill in the art whether this limitation is intended to be identical to, common to, or distinct from the earlier recited "*a respective row conductor*" (*claim 27, line 4*) and/or "*a row conductor at a corresponding location of the pixels in the row*" (*claim 27, line 8*).

15. Regarding claim 28, the ellipsis type punctuation marks "**...**" (*line 7*) and empty/blank entries (*lines 5-6 and 8-9*) in the matrix renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by the "**...**" and the empty/blank matrix entries), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.

The Applicant is respectfully requested to identify all of the matrix values.

16. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

17. The claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

As a courtesy to the Applicant, the examiner has attempted to also make rejections over prior art -- based on the examiner's best guess interpretations of the invention that the Applicant is intending to claim.

However, the indefinite nature of the claimed subject matter naturally hinders the Office's ability to search and examine the application.

Any instantly distinguishing features and subject matter that the Applicant considers to be absent from the cited prior art is more than likely a result of the indefinite nature of the claims.

The Applicant is respectfully requested to correct the indefinite nature of the claims, which should going forward result in a more precise search and examination.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

20. *Claims 16-25 and 27-29* are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Inoue et al (WO/2003/027999)*** in view of ***Akimoto et al (US 2004/0004591 A1)*** and ***Jongman et al (WO/2001/099195)***.

Please note: This Office action relies upon ***Inoue et al (US 7,071,635 B2)*** as an English language translation of ***Inoue et al (WO/2003/027999)***.

Regarding claim 16, ***Inoue*** discloses a display device [*e.g., Fig. 1*] comprising

an active matrix array of pixel elements [*e.g., Fig. 8: 20, TR1, TR2, C*] comprising

current-addressed light emitting display elements [*e.g., Fig. 8: 20*] arranged in rows and columns and

associated driver circuitry [*e.g., Fig. 8: 6*],

said device comprising:

compensation circuitry [*e.g., Fig. 1: C*] for modifying target pixel drive currents [*e.g., desired current values*] to take account of a voltage at each of said pixels [*e.g., Fig. 5: 20*; *Fig. 8: 10*] and

a dependency of a brightness characteristic [*e.g., Fig. 9: luminance levels A, A', B*] associated with a corresponding pixel,

the compensation circuitry comprising:

means [*e.g., Figs. 1, 2: 21-23, 27-29*] for applying an algorithm [*e.g., mathematical expressions 1-2*] to the target pixel drive currents (*see the entire document, including Column 4, Line 60 - Column 7, Line 9*); and

means [*e.g., Figs. 1, 2: 25, 26, 30, 31*] for scaling the target drive currents by applying a value representing the dependency of the brightness characteristic of the corresponding pixel on the voltage on a conductor associated with a row [*e.g., Fig. 5: lines*] containing the corresponding pixel (*see the entire document, including Column 7, Lines 10-49*).

Inoue appears to indicate the power line row conductor [*e.g., Fig. 5: 4*] is driven at one end.

Whereas, the instant application's algorithms are primarily directed to an analysis of a power line row conductor being driven at both ends [*e.g., Fig. 3:* V_L, V_R] (*see Page 10, Lines 9-11*).

Should it therefore be shown that ***Inoue*** discloses the claimed "*applying an algorithm*" subject matter with insufficient specificity:

Akimoto discloses a power line row conductor [*e.g., Fig. 12: 221*] is driven at both ends [*e.g., Fig. 12: 225*] (*see the entire document, including Paragraph 13*).

Inoue and ***Akimoto*** are analogous art, because they are from the shared inventive field of driving electroluminescent displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute ***Akimoto's*** dual-end driven power line row conductor [*e.g.,* ***Akimoto:*** *Fig. 12: 221*] in the place of ***Inoue's*** single-end power line row conductor [*e.g.,* ***Inoue:*** *Fig. 5: 4*], so as to reduce areas occupied by power supply input terminals [*e.g.,* ***Akimoto:*** *Paragraph 13*].

This combination, would have inherently resulted in the crosstalk corrections (voltage/current algorithms and scaling) instantly claimed.

Inoue discloses applying a value representing the dependency of the brightness characteristic of the corresponding pixel on the voltage on a conductor, as instantly claimed: "*A gradation voltage in accordance with the input data is applied to the gate of each second transistor TR2, and the current to be supplied to the organic EL element 20 from the drive line 4 via the second transistor TR2 is controlled according to the voltage... By adding a voltage*

corresponding to the voltage drop of Mathematical Expression 1 to the gradation voltage to be applied to the gate of the second transistor TR2 concerned, the desired current value, namely, luminescence of desired luminance, is available free of the influence of the voltage drop" (Column 5, Lines 36-41 and Column 6, Lines 25-30).

Therefore, ***Inoue's*** corrected signals are based on both the voltage drop and the input gradation signal.

Moreover, ***Inoue*** discloses, "*the voltage drop calculating means has a coefficient depending on the material characteristics of each of RGB pixels and calculates the magnitude of current flowing through the pixel in accordance with the coefficient and the input signal to the pixel*" (Column 8, Lines 39-43).

Should it be shown that ***Inoue*** still discloses a *brightness characteristic*, as instantly claimed, with insufficient specificity:

Jongman discloses that different red, green, and blue electroluminescent pixel materials have different brightness characteristics (*see the entire document, including Figs. 3-9; Table 1; Pages 6-9, 20, and 24-27*).

Inoue, ***Akimoto***, and ***Jongman*** are analogous art, because they are from the shared inventive field of driving electroluminescent displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Jongman's*** EL RGB materials to form ***Inoue's*** pixels, so as to provide a display having a long life.

This combination, would have resulted in ***Inoue's*** RGB pixel material characteristic coefficients compensating for pixel brightness characteristics.

Regarding claim 17, neither ***Inoue*** nor ***Akimoto*** expressly disclose an algorithm deriving values via a particular mathematical matrix.

However, as earlier discussed, ***Akimoto*** discloses a power line row conductor [*e.g., Fig. 12: 221*] being driven at both ends [*e.g., Fig. 12: 225*] (*see the entire document, including Paragraph 13*).

This arrangement is identical to the instantly disclosed power line row conductor being driven at both ends [*e.g., Fig. 3:* V_L, V_R] (*see Page 10, Lines 9-11*).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention that the coefficients of matrix M could be derived from the instant application's mathematical expressions (2-3) (*see Page 11*).

Accordingly, it would have been an obvious (*commonly known and understood*) mathematical method to apply an algorithm deriving values corresponding to the multiplication of a vector of the target pixel drive currents for a row of pixels by the inversion of the matrix M, in which

$$M = \begin{bmatrix} -2 & 1 & & & & \\ 1 & -2 & 1 & & & \\ & \ddots & \ddots & \ddots & & \\ & & 1 & -2 & 1 & \\ & & & 1 & -2 & \end{bmatrix},$$

and wherein a number of rows and columns of matrix M. is equal to a number of pixels in a row.

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known *mathematical matrix method* was recognized as part of the ordinary mathematical capabilities of one skilled in the art.

Regarding claim 18, ***Inoue*** discloses each pixel [*e.g., Fig. 8: 10*] comprises:

a current source circuit [*e.g., Fig. 8: TR2, C*] comprising

a drive transistor [*e.g., Fig. 8: TR2*] which converts an input voltage to a current, and

wherein the means for scaling determines the value derived from:

a current-voltage characteristic of the drive transistor; and

a voltage-current characteristic of a corresponding current-addressed light emitting display element (*see the entire document, including Column 4, Line 60 - Column 7, Line 49*).

Regarding claim 19, ***Inoue*** discloses the drive transistor and the light emitting display element of each pixel are in series between the row conductor [*e.g., Fig. 8: 4*] and a common line (*see the entire document, including Column 4, Line 60 - Column 7, Line 49*).

Regarding claim 20, ***Inoue*** discloses the value is derived from a drain-source voltage vs. a drain-source current characteristic of the drive transistor (*see the entire document, including Column 7, Lines 10-49*).

Regarding claim 21, ***Inoue*** discloses the means for scaling value is further derived from a resistance [*e.g., Fig. 5: R0, R*] of a corresponding row conductor (*see the entire document, including Column 4, Line 60 - Column 7, Line 49*).

Regarding claim 22, ***Inoue*** discloses the means for scaling value is determined as: $(1 - \alpha) R\lambda / (1 + \lambda / \mu)$, where:

R is the resistance of the row conductor between adjacent pixels;

λ is a slope of the current vs. voltage curve of the drive transistor;

μ is a slope of the current vs. voltage curve of the display element; and

α is a ratio of a current drawn by a pixel during a pixel programming phase to a current drawn by the pixel during display (*see the entire document, including Column 4, Line 60 - Column 7, Line 49: wherein taking the "pixel programming phase" to occur during "display," $\alpha = 1$, and the value $(1 - 1) R \lambda / (1 + \lambda / \mu) = 0$*).

Regarding claim 23, this claim is rejected by the reasoning applied in rejecting claim 17. It would have been an obvious (*commonly known and understood*) mathematical method to apply an algorithm deriving values by a recursive operation

$F(n) = F(n - 1) + \sum_{j=0}^{n-1} I(j) + F(0)$, in which:

F(n) is an nth term of a the vector result of multiplying the vector of the target pixel drive currents for a row of pixels by the inversion of the matrix M,

F(0) being the first term; and

I(j) is a target current for the jth pixel in a row, the first pixel being j=0.

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known *mathematical, recursive operation method* was recognized as part of the ordinary *mathematical* capabilities of one skilled in the art.

Regarding claim 24, this claim is rejected by the reasoning applied in rejecting claim 17. It would have been an obvious (*commonly known and understood*) mathematical method to apply an algorithm deriving values by

$$F(0) = \frac{1}{N+1}\sum_{j=0}^{n-1}(N-j)I(j)$$, in which:

N is a total number pixels in the row.

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known *mathematical method* was recognized as part of the ordinary *mathematical* capabilities of one skilled in the art.

Regarding claim 25, ***Inoue*** discloses the means for scaling comprises a look up table [*e.g., Fig. 2: 31*] (*see the entire document, including Column 7, Lines 10-49*).

Regarding claim 27, this claim is rejected by the reasoning applied in rejecting claim 16; furthermore, ***Inoue*** discloses compensation circuitry [*e.g., Fig. 1: C*] for modifying target pixel drive currents [*e.g., desired current values*] for a display device [*e.g., Fig. 1: 2*] which comprises

an active matrix array of current-addressed light emitting display elements [*e.g., Fig. 8: 20, TR1, TR2*] arranged in rows and columns having a respective row conductor and a column conductor,

the compensation circuitry comprising:

means [*e.g., Figs. 1, 2: 21-23, 27-29*] for applying an algorithm [*e.g., mathematical expressions 1-2*] to the target pixel drive currents which represents a relationship between currents [*e.g., Fig. 5: I*] drawn by pixels [*e.g., Fig. 8: 10*] in a row and voltages on a row conductor at a corresponding location of the pixels in the row (*see the entire document, including Column 4, Line 60 - Column 7, Line 9*); and

means [*e.g., Figs. 1, 2: 25, 26, 30, 31*] for scaling the resulting algorithm applied target pixel drive currents using a value representing a dependency of a pixel brightness characteristic on the voltage on the row conductor (*see the entire document, including Column 7, Lines 10-49*).

Inoue appears to indicate the power line row conductor [*e.g., Fig. 5: 4*] is driven at one end.

Whereas, the instant application's algorithms are primarily directed to an analysis of a power line row conductor being driven at both ends [*e.g., Fig. 3:* V_L, V_R] (*see Page 10, Lines 9-11*).

Should it therefore be shown that ***Inoue*** discloses the claimed "*applying an algorithm*" subject matter with insufficient specificity:

Akimoto discloses a power line row conductor [*e.g., Fig. 12: 221*] is driven at both ends [*e.g., Fig. 12: 225*] (*see the entire document, including Paragraph 13*).

Inoue and ***Akimoto*** are analogous art, because they are from the shared inventive field of driving electroluminescent displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute ***Akimoto's*** dual-end driven power line row conductor [*e.g.,* ***Akimoto:*** *Fig. 12: 221*] in the place of ***Inoue's*** single-end power line row conductor [*e.g.,* ***Inoue:*** *Fig. 5: 4*], so as to reduce areas occupied by power supply input terminals [*e.g.,* ***Akimoto:*** *Paragraph 13*].

This combination, would have inherently resulted in the crosstalk corrections (voltage/current algorithms and scaling) instantly claimed.

Inoue discloses applying a value representing the dependency of the brightness characteristic of the corresponding pixel on the voltage on a conductor, as instantly claimed: "*A gradation voltage in accordance with the input data is applied to the gate of each second transistor TR2, and the current to be supplied to the organic EL element 20 from the drive line 4 via the second transistor TR2 is controlled according to the voltage... By adding a voltage corresponding to the voltage drop of Mathematical Expression 1 to the gradation voltage to be applied to the gate of the second transistor TR2 concerned, the desired current value, namely, luminescence of desired luminance, is available free of the influence of the voltage drop*" (Column 5, Lines 36-41 and Column 6, Lines 25-30).

Therefore, ***Inoue's*** corrected signals are based on both the voltage drop and the input gradation signal.

Moreover, ***Inoue*** discloses, "*the voltage drop calculating means has a coefficient depending on the material characteristics of each of RGB pixels and calculates the magnitude of*

current flowing through the pixel in accordance with the coefficient and the input signal to the pixel" (Column 8, Lines 39-43).

Should it be shown that ***Inoue*** still discloses a *brightness characteristic*, as instantly claimed, with insufficient specificity:

Jongman discloses that different red, green, and blue electroluminescent pixel materials have different brightness characteristics (*see the entire document, including Figs. 3-9; Table 1; Pages 6-9, 20, and 24-27*).

Inoue, ***Akimoto***, and ***Jongman*** are analogous art, because they are from the shared inventive field of driving electroluminescent displays.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Jongman's*** EL RGB materials to form ***Inoue's*** pixels, so as to provide a display having a long life.

This combination, would have resulted in ***Inoue's*** RGB pixel material characteristic coefficients compensating for pixel brightness characteristics.

Regarding claim 28, this claim is rejected by the reasoning applied in rejecting claim 17.

Regarding claim 29, this claim is rejected by the reasoning applied in rejecting claim 25.

21. *Claim 26* is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Inoue et al (WO/2003/027999)***, ***Akimoto et al (US 2004/0004591 A1)***, and ***Jongman et al***

(WO/2001/099195) as applied to *claim 25* above, and further in view of ***Cok (US 2002/0175885 A1)***.

Regarding claim 26, the combination of ***Inoue***, ***Akimoto***, and ***Jongman*** does not appear to expressly disclose means for updating values of the look up table to enable changes in pixel brightness characteristics over time.

However, ***Cok*** discloses at least one pixel compensation module [*e.g., Fig. 1: 15, 46, 48*], and further comprising

means [*e.g., Fig. 1: 18*] for updating values of a look up table [*e.g., Fig. 1: 19*] to enable changes in pixel brightness characteristics over time (*see the entire document, including Paragraphs 10-15*).

Inoue, ***Akimoto***, ***Jongman***, and ***Cok*** are analogous art, because they are from the shared inventive field of driving light emitting display devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to combine ***Cok's*** compensation module [*e.g.,* ***Cok:*** *Fig. 1: 15, 46, 48*] and look-up table updating means [*e.g.,* ***Cok:*** *Fig. 1: 18*] with ***Akimoto's***, ***Jongman's***, and ***Inoue's*** combined invention, so as to improve image quality as the display ages [*e.g.,* ***Cok:*** *Paragraphs 1 & 10*].

Response to Arguments

22. Applicant's arguments filed on *18 May 2010* have been fully considered but they are not persuasive.

The Applicant contends, "*With regard to the form of the matrix including the term '...' and not showing each element, applicant submits that such form is standardized representation of matrices that need show only the essential elements of the matrix. In this case, the matrix requires only diagonal elements and these values are adequately represented. In addition, the term '...' is used to express that the elements shown before and after the term '...' are repeated therebetween and, thus, the values in between the expressed values need not be explicitly shown. Use the term '...' is well-known and would be understood by those skilled in the art*" (see Page 11 of the Response filed on *18 May 2010*). However, the examiner respectfully disagrees.

The ellipsis type punctuation marks "**...**" and empty/blank entries in the matrix renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by the "**...**" and the empty/blank matrix entries), thereby rendering the scope of the claim unascertainable. The Applicant is respectfully requested to identify all of the matrix values. If, as the Applicant contends, values are being repeated; it is respectfully requested that all those values be explicitly shown/claimed.

The Applicant contends, "*With regard to the terms 'n' and 'j', applicant submits that these are standardized mathematical terms to express variables within the context of an array of size*

'n' and, thus, the use of these expressions within the claims is well- known and recognized by those skilled in the art. Although the terms 'n' and 'j' represent variable values, these values are not indefinite as the term 'n' relates to the number of pixels in a row and the term 'j' represents an index of a pixel within a row. Hence, one skilled in the art would understand and recognize the use of the term 'n' and 'j' in the formulas presented" (see Page 11 of the Response filed on *18 May 2010*). However, the examiner respectfully disagrees.

Each of the terms/variables "***n***" and "***j***" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The Applicant is respectfully requested to clarify what each of these terms/variables is intended to represent (*e.g., integers, whole numbers, real numbers, etc*).

The Applicant contends, "***Inoue*** *fails to teach a system wherein the voltages at a pixel in a row are compensated for based on voltage drop and brightness as is recited in the claims. Rather,* ***Inoue*** *teaches a system wherein a voltage drop along a row conductor is compensated for so as to cause the brightness at a pixel to be a desired or expected value based on the initial input value...* ***Inoue*** *teaches that the adjustment to the voltage compensates for a voltage drop along the row conductor so as to achieve a brightness level at each pixel that corresponds to the input signal. Nowhere does* ***Inoue*** *disclose a further adjustment based on the brightness characteristic, as is recited in the claims. In this case,* ***Inoue*** *fails to teach a second level of adjustment, based on brightness, as is recited in the claims.*

Akimoto *discloses a system for providing uniformity if display luminance over large screens by disposing at least one of the input terminals for the power supply lines between input terminals. That is,* ***Akimoto*** *teaches that the input lines are distributed along the rows of pixel elements to provide substantially uniform voltage at each pixel.* ***Akimoto*** *fails to disclose or suggest any compensation based on brightness, as is recited in the claims*" (see Pages 12-13 of the Response filed on *18 May 2010*). However, the examiner respectfully disagrees.

Inoue discloses applying a value representing the dependency of the brightness characteristic of the corresponding pixel on the voltage on a conductor, as instantly claimed: "*A gradation voltage in accordance with the input data is applied to the gate of each second transistor TR2, and the current to be supplied to the organic EL element 20 from the drive line 4 via the second transistor TR2 is controlled according to the voltage... By adding a voltage corresponding to the voltage drop of Mathematical Expression 1 to the gradation voltage to be applied to the gate of the second transistor TR2 concerned, the desired current value, namely, luminescence of desired luminance, is available free of the influence of the voltage drop*" (Column 5, Lines 36-41 and Column 6, Lines 25-30).

Therefore, ***Inoue's*** corrected signals are based on both the voltage drop and the input gradation signal.

Moreover, ***Inoue*** discloses, "*the voltage drop calculating means has a coefficient depending on the material characteristics of each of RGB pixels and calculates the magnitude of current flowing through the pixel in accordance with the coefficient and the input signal to the pixel*" (Column 8, Lines 39-43).

Applicant's arguments with respect to *claims 16-29* have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

23. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/
Primary Examiner, Art Unit 2629
11 August 2010